

SEAL STRIP TEST DATA - KEY FINDINGS

The testing conducted on the seal strip product identified the following primary issues:

1. The soft-lip flexibility test results showed a notable change in flexibility in an unstressed state after ageing in shampoo and liquid soap environments at ambient temperature (reference Phase 1 test results).
 2. The soft-lip flexibility test results showed a notable change in flexibility in a stressed state after ageing in all environments (reference Phase 1 test results).
 3. The ability of the profile to retain its 'memory' after ageing and creep back to its original position was compromised by exposure to all ageing environments (reference Phase 2 test results).
 4. 10 minutes exposure at 50°C whilst the soft-lip was stressed in a normal state was enough to cause significant lifting of the outer limb causing a reduction in the soft-lip contact area and seal effectiveness as the outer limb deformed upwards under the standard service sealing pressure. The soft-lip contact area was reduced by up to 60% of the original contact area, as can be clearly seen in the photographs in the Appendix.
 5. This outer limb dimensional stability was poor even at 40°C, resulting in the soft-lip contact area being significantly reduced to a similar degree as seen at 50°C but over a longer exposure period.
- a. Overall, the results prove the instability of the seal strip in the expected service environments over short periods of time such as 2 years. The instability of the profile even as low as 40°C, due to the poor strength and heat resistance of the outer limb of the profile, also raises doubts about the short-term effectiveness of the seal strip within the temperature range the product will see during service. These statements assume that the joint between the wall and ledge is static.**
6. As the seal strip is fixed to a wall, any downward movement of the shower tray or bath ledge reduces the pressure of the sealing lip seal on the ledge and not only compromises the seal, but further exacerbates the aforementioned problems.
- b. When the additional effects of joint movement on the seal strip are considered in conjunction with the effects on the material as detailed above, the evidence suggests that even with small downward movements of the ledge, seal failure is probable during normal use.**
7. The seal strip is a pressure sensitive seal fixed to the wall but not the ledge. Lip pressure on the ledge determines the effectiveness of the seal which is initially set during installation. Thereafter, the effectiveness of the seal strip as a watertight seal depends on the lip maintaining sufficient pressure on the ledge. To maintain the lip pressure achieved at the time of installation, the material must remain stable, durable and the ledge must not move.
- c. Fixing a seal strip exclusively to a wall, and then relying on a protruding flexible lip to maintain a watertight seal with an adjacent ledge that is subject to move away from the lip, is a poor method of maintaining a watertight seal over a movement joint, brought about by unsuitable product design.**